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## Scalar fields as dark matter

Tonatiuh Matos Stanford University of Medicine, USA

One alternative to the cold dark matter (CDM) paradigm is the scalar field dark matter (SFDM) model, which assumes dark matter of is a spin-0 ultra-light scalar field with a typical mass  $m\sim10^{-22}eV/c2$  and positive self-interactions. Due to the ultra-light boson mass, the SFDM could form Bose-Einstein condensates in the very early universe, which are interpreted as the dark matter haloes. Although cosmologically the model behaves as CDM, they differ at small scales: SFDM naturally predicts fewer satellite haloes, cores in dwarf galaxies and the formation of massive galaxies at high redshifts. In this talk, we describe this model and show that the SFDM model is an interesting alternative to be the dark matter of the universe.

## Biography

Tonatiuh Matos has completed his graduation in Theoretical Physics at the Friedrich-Schiller Universität in Jena, Germany and habilitation at the same University. He had Post-doctoral positions at the Universität Wien and at the Technische Universität Wien. He has been Visiting Professor at Albert Einstein Institute of the Max-Planck Gessellschaft in Germany and at German Universities and Visiting Professor at University of British Columbia in Vancouver, Canada. He has more than 120 publications in international research journals, 40 in proceedings and 12 publications in popular science journals. He has written two popular science books, one monography on mathematical physics, three science fiction novels and has been editor of seven research specialized books.

tmatos@fis.cinvestav.mx

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